

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Date: Nov. 17, 2009

Applicants: Bednorz et al.

Docket: YO987074BZ

Serial No.: 08/479,810

Group Art Unit: 1751

Filed: June 7, 1995

Examiner: M. Kopec

Appeal No. 2009-003320

For: NEW SUPERCONDUCTIVE COMPOUNDS HAVING HIGH
TRANSITION

TEMPERATURE, METHODS FOR THEIR USE AND
PREPARATION

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**REQUEST FOR REHEARING
UNDER
37 C.F.R. § 41.52 (a)(1)
Of
Decision on Appeal dated 09/17/2009**

Sir: Please consider the following.

Pursuant to 37 C.F.R. § 41.51 (a)(1) appellants request
rehearing of the Decision on Appeal dated 09/17/2009 (Board's Decision).

**LIST OF
ACRONYMS AND ABBREVIATIONS
USED IN THIS PAPER**

The Following acronyms or abbreviated names are used in this paper:

1. **BD** or **Board's Decision** for the Decision on Appeal dated 09/17/2009;
2. **FA** or **Final Action** for the final rejection in the Office Action dated 10/20/2005 which is the final rejection which is being appealed;
3. **OA07282004** for the Office Action dated 07/28/2004.
4. **TFA** or **Total Final Action** for the combination of the Final Action and OA07282004 which is incorporated in the Final Action at page 4.
5. **BV1** for Appellants Brief Volume 1 filed May 15, 2008;
6. **BV2** for Appellants Brief Volume 1 filed May 15, 2008;
7. **BV3** for Appellants Brief Volume 1 filed May 15, 2008;
8. **BV4** for Appellants Brief Volume 1 filed May 15, 2008;
9. **BV5** for Appellants Brief Volume 1 filed May 15, 2008;
10. **APPELLANT'S BRIEF** for AB1, AB2, AB3, AB4 and AB5 collectively.
11. **EA** or **Examiner's Answer** for the Examiner's Answer mailed August 20, 2008;
12. **RB** for the Reply Brief filed 20 October 2008;
13. **RBS1** for the Reply Brief Supplement 1 filed October 21, 2008;
14. **RBS2** for the Reply Brief Supplement 2 filed October 28, 2008;
15. **RBS3** for the Reply Brief Supplement 3 filed November 6, 2008,
16. **AR** or **Appellants' Replies** for RB, RB1, RB2 and RB3 collectively,;
and
17. **TOH** for the Transcript of the Oral Hearing held 10 June 2009.

INITIAL COMMENTS

Board's Decision page 30, lines 8-10 states "the claims under review are not limited to ceramic compositions (i.e., compositions which can be made using known principles of ceramic fabrication)." Appellants respectfully disagree. The following claims recite that the high T_c element of the claims from which these claims depend "can be made according to known principles of ceramic science" or similar recitation: dependent claims 322 to 360, 414 to 427, 436, 453 to 465, 473 to 475, and 484 to 491 and independent claim 522. Of these claims the following are allowed by the Examiner: 330, 335, 336, 346 and 358. Most of the dependent claims are in multiple dependent form. The Board's Decisions reversed the Examiner's rejection of parts of the other multiple dependent claims. Others remain with the Examiner's rejections not reversed.

In addition,

- independent claims 59 is directed to "a ceramic like material" and
- independent claim 374 is directed to "a material comprising a ceramic characteristic."

Dependent claim 351 depends from claim 59 and states that the "ceramic like material" "can be made according to known principles of ceramic science."

Dependent claim 419 depends from claim 374 and states that the "the material comprising a ceramic characteristic" "can be made according to known principles of ceramic science."

Some of these claims are listed below.

Appellants note that at this web address of the Nobel Prize website

http://nobelprize.org/nobel_prizes/physics/laureates/1987/

the following announcement of Appellants award of the 1987 Nobel Prize can be found.



The Nobel Prize in Physics 1987

"for their important break-through in the discovery of superconductivity in ceramic materials"



J. Georg Bednorz



K. Alexander Müller



The Nobel Prize in Physics 1987

"for their important break-through in the discovery of superconductivity in ceramic materials"

This states that the 1987 Nobel Prize was awarded to Appellants "for their important break-through in the discovery of superconductivity in ceramic material." The Board's Decision does not find enabled a claim commensurate in scope with the contribution for which they were awarded the Nobel Prize.

CLAIM 59 A combination, comprised of:

a ceramic-like material having an onset of superconductivity at an onset temperature greater than or equal to 26°K,

means for passing a superconducting electrical current through said ceramic-like material while said material is maintained at a temperature greater than or equal to 26°K and less than said onset temperature, and

means for cooling said superconducting ceramic-like material to a superconductive state at a temperature greater than or equal to 26°K and less than said onset temperature, said material being superconductive at temperatures below said onset temperature and a ceramic at temperatures above said onset temperature.

CLAIM 351 A **combination according to claim 59, wherein said ceramic-like material can be made according to known principles of ceramic science.**



CLAIM 374 A combination, comprised of:

a material comprising a ceramic characteristic comprising an onset of superconductivity at an onset temperature greater than or equal to 26°K,

means for passing a superconducting electrical current through said material comprising a ceramic characteristic while said material is maintained at a temperature greater than or equal to 26°K and less than said onset temperature, and

means for cooling said superconducting material having a ceramic characteristic to a superconductive state at a temperature greater than or equal to 26°K and less than said onset temperature, said material being superconductive at temperatures below said onset temperature and a ceramic at temperatures above said onset temperature.

CLAIM 419 A combination according to claim 374, wherein said material can be made by known principles of ceramic science.



CLAIM 522 An apparatus comprising:

a superconductive current carrying element comprising a T_c greater than or equal to 26 °K

said superconductive current carrying element comprises a composition that can be made according to known principles of ceramic science.



CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a means for providing an electric current to flow in said means for conducting a superconducting current.

CLAIM 453 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

- **List of multiple-dependent claims reciting limitation “made according to known principles of ceramic science”**

Underlined Referenced Claim Numbers = allowed by the Examiner

Double Underlined Referenced Claim Numbers = Examiner’s rejection reversed by the Board’s Decision

Referenced Claim numbers not underlined or double underlined remain rejected.

CLAIM 326 An apparatus according to anyone of claims 93 to 95 or 138, wherein said mixed copper oxide can be made according to known principles of ceramic science.

CLAIM 327 (Previously Presented) A combination according to anyone of claims 64 or 135, wherein said mixed copper oxide can be made according to known principles of ceramic science.

CLAIM 329 A superconductive combination according to anyone of claims 12 to 23, 110, 131, 132 or 367-370, wherein said superconductive composition can be made according to known principles of ceramic science.

CLAIM 334 An apparatus according to anyone of claims 275, 276, 310 or 311, wherein said superconductive copper oxide can be made according to known principles of ceramic science.

CLAIM 337 A device according to anyone of claims 114 or 117, wherein said transition metal oxide can be made according to known principles of ceramic science.

CLAIM 338 An apparatus according to anyone of claims 24 to 26, 60 to 63, 116, 141 to 143, 172, 187, 222, 232 to 234, 263, 278, 285, 287, 288, 313 or 320, wherein said transition metal oxide can be made according to known principles of ceramic science.

CLAIM 355 (A combination according to anyone of claims 77, 78, 79, 80, 81, 186, 379 or 380, wherein said mixed copper oxide composition can be made according to known principles of ceramic science.

CLAIM 356 A device according to anyone of claims 124, 125, 126, or 127, wherein said composition of matter can be made according to known principles of ceramic science.

CLAIM 422 A combination according to anyone of claims 379 or 380, wherein said mixed copper oxide can be made by known principles of ceramic science.

CLAIM 424 A superconductive apparatus according to anyone of claims 383, 384, 385, 386, 387 and 389, wherein said composition can be made by known principles of ceramic science.

CLAIM 427 A apparatus according to anyone of claims 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412 or 413, wherein said superconductive composition can be made by known principles of ceramic science.

CLAIM 549 An apparatus according to anyone of claims 496 to 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514 or 515, wherein said superconductive element can be made according to known principles of ceramic science.

ARGUMENT

1. SECTION

BD page 7 footnote 4 states

Claims 138 and 326/138 are not included in the Examiner's rejection and therefore are not on appeal and are not under our jurisdiction. Nevertheless, we observe that these claims are not limited to the subject matter described as enabled in the Answer (or in this Opinion). Under these circumstances, the Examiner's failure to include claims 138 and 326/138 in the § 112, first paragraph, rejection before us appears to be an inadvertent oversight.

BD page 2 in footnote 1 acknowledges that claims 138 and 326/138 are not on appeal since they are not in the list of rejected claims in the Examiner's Answer.

Since claims 138 and 326/138 are not finally rejected and are not under appeal, these claims are not within the Board's jurisdiction. As stated in Appellant's Request to Reopen Prosecution, it is Appellants' understanding that the Board should not be making statements in the Board's Decision that cast doubt on the patentability or validity of claims that are not finally rejected and under appeal. In view thereof Appellants request that the Request to Reopen Prosecution be granted.

2. SECTION

Although BD states at pages 2-4 that

Based on a discovery for which they won a Nobel prize, Appellants claim a combination, apparatus, device, or structure comprising a material exhibiting a superconductive state at a temperature greater than or equal to 26°K. This material is broadly and variously defined in the rejected claims as being, for example, an

oxide, a composition, a ceramic characteristic, and a means.

The Board's Decision leaves out another very important limitation that is contained in many of Appellant's claims which is that the high T_c superconducting element **"can be made according to known principles of ceramic science"** or similar recitation which can be found in dependent claims 322 to 360, 414 to 427, 436, 453 to 465, 473 to 475, and 484 to 491 and independent claim 522. (These claims shall be referred to herein as The Know Principles of Ceramic Science Claims.) Of these claims the following were allowed by the examiner: 330, 335, 336, 346 and 358 and the rejection was reversed by the Board's Decision for the following claims ?????????? See BV1 paragraph bridging pages 45-46, BV1 page 52, lines 1-4 from the bottom and BV1, page 225, the first sentence of the last paragraph which states:

More specifically, Applicants see no justifiable reason to reject as not enabled Applicants' claims which specifically recite, or that can be amended to recite, that the element having a $T_c \geq 26K$ "can be made according to known principles of ceramic science" since there is no evidence that such species cannot be made following Applicants' teaching.

The Board's Decision states at page 3, lines 2-3:

Rejected claims defining the above-described subject matter include claims 12, 88, 115, 117, 374, and 438 which read as follows: [the full text of claims 12, 88, 115, 117, 374, and 438 are quoted]

The Boards' Decision has selected to highlight, as examples claims 12, 88, 115, 117, 374, and 438 as broadly stated independent claims. Of these independent claims, claims 88 and 115 do have a claim depending from them reciting the limitation **"can be made according to known principles of ceramic science."** Claims 88, 117, 374 and 438 do have claims depending therefrom reciting **"can be made according to known**
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principles of ceramic science.” Claim 239 depends from claim 12, Claim 337 depends from claim 115, Claim 419 depends from claim 374. Claim 453 depends from claim 438. Dependent claims 239, 337, 419 and 453 recite **“can be made according to known principles of ceramic science.”**

BV1 at page 9 states:

All rejected claims are appealed. Claims 1-64, 66-72, 84, 85, 88-96, 100-102, 109-112, 115-122, 126-134, 139, 141-143, 146-149, 153-155, 162-166, 182-184, 187, 188, 192-195, 198-212, 217-219, 222, 223, 227-230, 232-234, 237-240, 244-246, 253-257, 268, 273-275, 278, 279, 283-286, 289-295, 302, 303, 308-310, 313, 314, 318-329, 331-334, 337-345, 347-357, 359-374, 376, 382, 383, 389, 394, 395, 402, 407, 408, 414-419, 421-424, 426-501, 508-510 and 515-543. Each rejected claim is appealed individually. None of these claims are appealed in a group except as indicated in Preliminary Comment A in Volume 3.

BV3 at page 3 states under heading Preliminary Comments A states “[a]ll the claims are individually appealed.” BV3 pages 13-1769 provides reasons for why each rejected claims is enabled by Appellants’ teaching and why the Examiner’s reasons for rejecting those claims as not being enabled is legal error. The Board’s Decision has not directly addressed those arguments.

3. SECTION

The Board’s Decision states at page 6, line 10-14

Appellants’ basic position is that the Examiner has failed to make a prima facie case that the rejected claims are not enabled and in any event that Appellants have provided extensive evidence showing persons of ordinary skill in this art can determine species within the scope of the rejected claims without undue experimentation (see, for example

Although the statement is correct it is incomplete:

Appellants' position is more completely summarized at BV1 in the paragraph bridging pages 44-45 which states:

Since the known methods disclosed by Applicants are used to fabricate species within the scope of Applicants claims, it is Applicants' position that persons of skill in the art can determine those species without undue experimentation and consequently, Applicants have enabled their claims to their full scope. When species are determinable without undue experimentation, the art is a predictable art. Even though a high Tc material is a chemical composition, all aspects of chemistry are not unpredictable. That chemistry is not per se unpredictable is generally recognized by decisions of the Board and the Courts, for example at 427 F.2d 833, 839 the CCPA in *In re Fisher* states "In cases involving unpredictable factors such as most chemical reactions." Thus all chemical reactions are [not] [sic]unpredictable [.] [sic] Applicants' evidence shows that the chemistry involved in formation of high Tc materials does not have to be understood to fabricate them which is one reason for why species are readily determinable. If the chemistry does not have to be understood to fabricate species, it is improper to refer to the art of high Tc superconductivity as unpredictable. Applicants' claims are directed to an apparatus using the high Tc material and not to a composition of matter.

Appellants address the issue of the patent legal term "predictable versus non-predictable" meaning "determinable versus non-determinable" in many places in Appellants' Brief and Appellants' Replies. Appellants support this based on legal authorities. See BV1 at page 47, lines 12-23 which states:

In *In re Wands* 858 F.2d 731, 742 (Fed. Cir. 1988); 8 U.S.P.Q.2D 1400, 1408 Judge Newman concurring in part, dissenting in part stated "[The inventor] must provide sufficient data or authority to show that his results are reasonably predictable within the scope of the claimed generic invention, based on experiment and/or scientific theory. " Thus experiment or theory is sufficient to establish predictability. And as stated above by the Examiner "a person of skill in the art, using the techniques described in the application, which included all principles of ceramic fabrication known at the time the application was initially filed, can make the known superconductive compositions." There is no requirement to know in advance all examples enabled by their teaching. Thus the field of High Tc superconductivity is predictable within the meaning of *In re Wands*. Species within the scope of Applicants'

claims are determinable without undue experimentation and by well known testing.

Thus "experiment and/or scientific theory" is sufficient to establish enablement.

See BV1 paragraph bridging page 47-48 which states:

The Examiner's reference to "subsequently discovered BSCCO or TI-systems " suggests that it is the Examiner's view that for Applicants to be allowed a generic claim, Applicants must know in advance all materials that can be used to practice Applicant's claims. The CAFC has stated in *Sri Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985); 227 USPQ 577, 586 that this is not necessary:

The law does not require the impossible. Hence, it does not require that an applicant describe in his specification every conceivable and possible future embodiment of his invention. The law recognizes that patent specifications are written for those skilled in the art, and requires only that the inventor describe the "best mode" known at the time to him of making and using the invention. 35 U.S.C. § 112.

Applicants have shown that persons of ordinary skill in the art as of Applicants' discovery can practice Applicants' claims to their full scope and it is Applicants' understanding of the Examiner's statements that the Examiner has agreed with this.

The CAFC has further stated:

An applicant for patent is required to disclose the best mode then known to him for practicing his invention. 35 U.S.C. § 112. He is not required to predict all future developments which enable the practice of his invention in substantially the same way. *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1362 (Fed. Cir. 1983); 39 USPQ2d 1065.

This is exactly what applicants have done. Thus Applicants' claims are enabled.

The CAFC further states in regards to future developments:

Enablement does not require the inventor to foresee every means of implementing an invention at pains of losing his patent franchise. Were it otherwise, claimed inventions would not include improved modes of practicing those inventions. Such narrow patent rights would rapidly become worthless as new modes of practicing the invention developed, and the inventor would lose the benefit of the patent bargain. *Invitrogen Corp. v. Clontech Labs., Inc.*, 429 F.3d 1052, 1071 (Fed. Cir. 2005)" And, "Our case law is clear that an applicant is not required to describe in the specification every conceivable and possible future embodiment of his invention." *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1344, 60 U.S.P.Q.2D (BNA) 1851 (Fed. Cir. 2001).

The Examiner's position in regards to the enablement of Applicants' claims is inconsistent with the CAFC's position that "[e]nablement does not require the inventor to foresee every means of implementing an invention." Thus Applicants' claims are enabled and the rejection should be reversed. The Examiner uses the term predictable with the meaning of "foresee." The correct meaning of the term "predictable" for enablement purposes is "determinable" without undue experimentation.

Thus the patent legal term "predictable" does not means knowledge in advance of all species that cam with in the scope of Appellants' claims, but means determinable without undue experimentation. The Board's Decision ignores this legal authority and is thus an error of law.

BV1 paragraph bridging pages 51-52 states:

The Board in *Ex parte Jackson* 217 USPQ 804 and 807 states "a considerable amount of experimentation is permissible if it is merely routine." As stated by the Examiner the experimentation to find other species is merely routine. The Board in *Ex parte Jackson* goes on to state if the experimentation is not merely routine there is enablement "if the specification in question provides

excessable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to produce a desired embodiment of the invention claimed." 217 USPQ 804, 807. Thus guidance is needed when the experimentation is not merely routine. Since there is no evidence in the present application that anything other than routine experimentation is needed to determine other species, than specifically described by Applicants', the guidance provided by Applicants' teaching is sufficient to satisfy enablement.

Thus the Board's own precedent *Ex parte Jackson* states "a considerable amount of experimentation is permissible if it is merely routine."

BV1 paragraph bridging pages 87-88 states:

The CAFC in *In re Wright* 27 USPQ2d 1510 (1993) supports Applicants' view that a predictable art is one in which species within the scope of a claim under examination are determinable whether or not a theory of the invention is known as of the filing date of the application under examination. The claims under examination in *In re Wright* are directed to a recombinant vaccine which confers immunity to chickens against a certain type of RNA tumor virus. These claims include in their scope vaccines against the AIDS virus. The CAFC states:

Wright seeks allowance, however, of claims which would provide, in varying degrees, a much broader scope of protection than the allowed claims. 27 USPQ2d 150, 1511.

The CAFC further states:

The Examiner made reference to the difficulty that the scientific community is having in developing generally successful AIDS virus vaccines merely to illustrate that the art was not even today as predictable as Wright suggested it was back in 1983!

No mention is made of the presence or absence of a theory. Thus *In re Wright* shows that an art is unpredictable when persons of skill in the art do not "know how to make" species that

come within the scope of the claims and is predictable when people of skill in the art know how to make species within the scope of the claims based on the teaching of the application under examination.

Thus the patent legal term "predictable" is not synonymous with the existence or a theory, but is synonymous with determinability without undue experimentation.

BV1 paragraph bridging pages 94-95 states in regards to non-precedential Board decision *Ex parte Chen*:

In *Ex parte Chen*, an unpublished decision reported at 61 USPQ 1025, 1028, the Board of Patent Appeals and Interferences held claims to transgenic carp not unpatentable for lack of enablement stating:

In responding to appellants' arguments, the examiner urges that the level of experimentation is undue and points to the success rate 1% or 20 out of 1746 attempts for the integration of the gene into the embryos described in the specification, (Answer, pages 6 and 14). However, the examiner offers no evidence which would reasonably support a conclusion that one skilled in this art would regard this rate of success for the integration of the rtGH gene as evidencing undue experimentation. We remind the examiner that some experimentation may be required as long as it is not undue. *In re Vaeck* 941 F.2d 488, 496, 20 USPQ2d 1438, 1445 (Fed. Cir. 1991). Appellants' disclosure explicitly describes the methodology to be used to arrive at the claimed transgenic carp. As the record now stands, the numbers emphasized by the examiner would reasonably appear to reflect the need for a repetitive procedure, rather than un-due experimentation by those wishing to practice the invention.

Notwithstanding that the specification in *Ex parte Chen* disclosed only a 1% success rate in the examples described in the specification, the Board found the claims enabled since

some experimentation may be needed to determine which examples work and which do not. The claims were found enabled since the experimentation was not undue. The need for a repetitive procedure to determine which examples have the desired result does not render the claims not enabled. That is, there was "how-to-make-and-use predictability" in the Ex parte Chen invention even though there appeared to have been no "theoretical predictability" and even though the Ex parte Chen applicant could not foresee in advance, predict in advance or specifically teach in advance of experimentation which species had the desired result. Thus, that Applicants' specification describes examples that either do not show a Tc greater than or equal to 7.26 K or examples that have phases with and without a Tc greater than or equal to 26 K does not mean that they have not enabled their genus claims.

Thus a low success rate, 1%, is not fatal to enablement when the experimentation is routine, i.e. species are determinable by routine experimentation. Routine repetitive procedures are sufficient to provide enablement

BV1 page 95, last 17 lines, further states:

That the species within this genus which have the desired high Tc property may be determined experimentally and not by a theoretical means according to the Board's decision in Ex parte Chen, does not mean that Applicants genus claims are not enabled. The CCPA agrees with this when it states:

What the dissent seem to be obsessed with is the thought of catalysts which won't work to produce the intended result. Applicants have enabled those in the art to see that this is a real possibility, which is commendable frankness in a disclosure. Without undue experimentation or effort or expense the combinations which do not work will readily be discovered and, of course, nobody will use them and the claims do not cover them. The dissent wants appellants to make everything predictable in advance, which is impracticable and unreasonable. In re Angstadt. 190 USPQ 214, 219.

From this it is clear that 35 U.S.C. 112, first paragraph, does not require everything to be predictable in advance and permits the

determination of the combinations that will and will not work by experimentation that is not undue.

BV1 page 95, lines 1-18, states

The USPTO Board of Patent Appeals and Interferences in *Ex parte Jackson* 217 USPQ 804 (Bd. App. 1982) states at 217 USPQ 804, 806-807:

The first paragraph of 35 U.S.C. 112 requires that the disclosure of an invention be "in such a full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains or with which it is most nearly connected, to make and use the same ... Decisional law has interpreted the statutory requirement as dictating that sufficient information be given in the application so that one of ordinary skill in the art can practice the invention without undue experimentation. ...

The determination of what constitutes undue experimentation in a give case requires the application of a standard or reasonableness, having due regard for the nature of the invention and the state of the art. ... The test is not merely quantitative, since a considerable amount of experimentation is permissible if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to practice a desired embodiment of the invention claimed.

BV1 page 98, lines 19-24 states

The Court in *In re Geerdes* further states at 180 USPQ 993 "The Board expressed concern that 'experimentation' is involved in the selection of proportions and particle sizes, but this is not determinative of the question of scope of enablement. It is only undue experimentation that is fatal." There is no evidence that undue experimentation is needed "to make" materials to practice Applicants' claims. The Examiner refers to none.

BV1 paragraph bridging pages 101- 102 states:

The CCPA In re Angstadt and Griffin further states that:

we cannot agree with the Board that Appellants' disclosure is not sufficient to enable one of ordinary skill in the art to practice the invention without undue experimentation. We note that many chemical processes and catalytic processes particularly, are unpredictable, ... , and the scope of enablement varies inversely with the degree of unpredictability involved... The question, then, whether in an unpredictable art, section 112 requires the disclosure of a test with every species covered by a claim. To require such a complete disclosure will apparently necessitate a patent application or applications with 'thousands ' of examples... . More importantly, such a requirement would force an inventor to seek adequate patent protection to carry out a prohibited number of natural experiments. This would tend to discourage inventors in filing patent applications in an unpredictable area since the patent claim would have to be limited those embodiments which are expressly disclosed. A potential infringer could readily avoid 'infringement of such claims' by merely finding another analogous (example) which could be used 190 USPQ 124, 218.

Thus Applicants do not have to specifically identify in the specification all species that come within the scope of their claims.

BV1 page102, line 6-10, states:

The CCPA In re Angstadt further goes on to say

having decided that appellants are *not* required to disclose every *species* encompassed by the claims even in an unpredictable art such as the present record presents, each case must be determined on its own facts. 190 USPQ 214, 218. (emphasis in the original).

BV1 Page 103, lines 7-15, states:

In re Angstadt further states at 190 USPQ 219:

We note that the PTO has the burden of giving reasons, supported by the record as a whole, why the specification is not enabling. In *re Armbruster*, 512 F.2d 676, 185 USPQ 152 (CCPA 1975). Showing that the disclosure entails undue experimentation is part of the PTO's initial burden under *Armbruster*; this court has never held that evidence of the necessity for *any* experimentation, however slight, is sufficient to require the applicant to prove that the type and amount of experimentation needed is not undue.

{{{note I stopped at page 106}}}

As will be gone over in detail below the Board's Decision ignores this support in legal authority and merely states that they are unconvinced.

4. SECTION

DB1 pages 7-10 under heading "Finding of Fact" and under subheading "The Specification" quotes selected sections of the Specification. As noted in Section 3 of Appellants' Request To Reopen Prosecution submitted herewith the Board's Decision specifically identifies facts that were not specifically identified in the Total Final Rejection of in the Examiner's Answer. Thus as argued in the Request to Reopen Prosecution the Board's Decision's reliance on facts not relied on by the Examiner result in the Board's Decision being more in the nature of an action on the merits than a decision on appeal.

Appellants note that each of Appellants' claims has support in the Specification as shown in BV2. This is undisputed by the Total Final Action, the Examiner's Answer or the Board's Decision.

5. SECTION

DB1 pages 10- 11 under heading "Finding of Fact" and under subheading "The Examiner's Evidence" quotes selected sections of the Examiner's Evidence which were for the first time introduced into the prosecution of this application in the Final Action and referred to in the Examiner's Answer. That evidence is:

- I. the Schuller article "A Snapshot View of High-Temperature Superconductivity 2002," BD footnote 2 at page 6, and
- II. the article entitled "Exploring Superconductivity." (Appellants note that this is an article that appears to have only appeared on the internet and is not currently available on the internet.)
BD footnote 3 at page 6

BD page1, lines 8-12, state:

Unpredictability in this art also is supported by the Examiner's uncontested findings that the Specification discloses **numerous** compounds or compositions which fall within the compositional definitions of the rejected claims yet fail to exhibit superconductivity at temperatures greater than or equal to 26°K (Ans., first full para, at 9, para, bridging 11-12).
(Emphasis added.)

This is an error of fact .Appellants' Specifications does not "discloses **numerous** compounds or compositions which fall within the compositional definitions of the rejected claims yet fail to exhibit superconductivity at temperatures greater than or equal to 26°K." (Emphasis added.) Appellants have never agreed to or acknowledged there are such "numerous compounds or compositions" disclosed in their Specification. Neither the Total Final Action, the Examiner's Answer nor the Board's Decision specifically identify such "numerous compounds or compositions" disclosed in their Specification. The paragraph quoted above from the Board's Decision refers to the first full paragraph of page 9 of the Examiner's answer. Appellants believe that the correct paragraph is the second full paragraph of pare 9 which states:

The present specification actually shows that known forms of "a transition metal oxide", "a composition", and "a copper-oxide compound" do **not** show the onset of superconductivity at above 26/K. At p. 3, line 20, through p. 4, line 9, of their disclosure, the applicants state that the prior art includes a "Li-Ti-O system with superconducting onsets as high as 13.7/K." Official Notice is taken of the well-known fact that Ti is a transition metal.

That disclosure also refers to "a second, non-conducting CuO phase" at p. 14, line 18. Accordingly, the present disclosure is not deemed to have been fully enabling with respect to the "transition metal oxide" of claim 24, the "composition" of claim 88, or the "copper-oxide compound" of claim 96.

This paragraph only refers to one material, Li-Ti-O, that has a T_c less than 26 K and refers to "a second, non-conducting CuO phase" at p. 14, line 18. of the Specification. This is only two examples. The second example is a mixed phase material that is superconducting with T_c greater than or equal 26 K. Thus this second example is not an example of a material that "fail[s] to exhibit superconductivity at temperatures greater than or equal to 26°K." See BV1 page 118, lines 2-3. Appellants' claims are not directed to 100% superconductive material.

The paragraph bridging pages 11-12 of the Examiner's Answer states:

With a 1:1 ratio of (Ba, La) to Cu and an x value of 0.02, the La-Ba-Cu-O form (i.e., "RE-AE-TM-O", per p. 8, line 11) shows "no superconductivity". With a 2:1 ratio of (Ba, La) to Cu and an x value of 0.15, the La-Ba-Cu-O form shows an onset of superconductivity at " $T_c = 26/K$ ". It should be noted, however, that all of the claims in this application require the critical temperature (T_c) to be "in excess of 26/K" or "greater than 26/K".

There is only one example of a material in this quoted language from the Examiner's Answer that is not superconductive.

Thus the sections of the Examiner's Answer referred to by the Board's Decision in the paragraph quoted above refers to at most two materials that are not superconductors, one of which is a previously know material that is metallic. Thus the Examiner's Answer does not show that Appellant's Specification discloses "**numerous** compounds or compositions which fall within the compositional definitions of the rejected claims" as

stated by the Board's Decision quoted above. Appellant's do not believe two is numerous.

6. Section

The Summary of Appellant's Evidence at BD pages 11 -13 highlight only selected portions of Appellants' evidence.

7. Section

BD pages 13- 15 lists the "Principles of Law" applied in the Board's Decision. Appellants disagree that the quoted passages from the cited CAFC decisions

Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361 (Fed. Cir. 1997)

In re Wright, 999 F.2d 1557 (Fed. Cir. 1993)

In re Wands, 858 F.2d 731, (Fed. Cir. 1988)

listed at these pages accurately reflect the law of enablement as it should be applied to the claims for which the Board's Decision has not reversed the Examiner's rejections for lack of enablement under 35 U.S.C. 112, first paragraph. Each of these three CAFC decisions are direct to enablement of biotechnology inventions. For each of these CAFC decisions the Board's Decision "divorces the court's holding from the facts upon which it was rendered."

Ricoh Co., Ltd. v. Quanta Computer Inc., 550 F.3d 1325, 1339 (Fed. Cir. 2008)

In addition the Board's Decision is contrary to its own precedent *Ex parte Jackson* 217 USPQ 804 (Bd. App. 1982). *BV1*, page 97, lines 1-7, states

The Board in *Ex parte Jackson* further states at 217 USPQ 808 "The problem of enablement of processes carried out by microorganisms were uniquely different from the field of chemistry generally. Thus, we are convinced that such recent cases as *In re Angstadt* 537 F.2d 498, 190 USPQ 214 (CCPA 1976) and *In re Geerdes* 491 F.2d 1260, 180 USPQ 789 (CCPA 1974) are in apposite to this case." Therefore, since the present application is not directed to biotechnology or microorganism invention, the decision of

Ex parte Jackson does not apply, but In re Angstadt and In re Geerdes do apply.

The Board's Decision has essentially ignored In re Angstadt and In re Geerdes which the Board's precedent Ex parte Jackson says should apply. Appellant's Brief and Appellant's Replies are primarily focused on In re Angstadt and the decisions which rely on it and apply it. The Board's Decision is primarily based on *Genentech, Inc. v. Novo Nordisk* which is not relied on by the Total Final Action or the Examiner's Answer. The Board's Decision secondarily relies on *In re Wright* which the Examiner's Answer only cursorily cites at page 26, lines 9-15, but does not explicitly apply. Also the Total Final Action only cursorily cites *In re Wright* which it does not apply. The Board's Decision thirdly relies on *In re Wands* which is not relied on by the Total Final Action or the Examiner's Answer. Each of these three decisions is a biotechnology decision. For the reasons given in Appellants' Request that Prosecution be Reopened submitted with this Request for Rehearing, Appellants' request that prosecution be reopened so that Appellants' will not be responding to arguments presented for the first time in the Board's Decision in this Request for Rehearing.

It is Appellants position that the decision that should be applied to the facts and technology of the claim on appeal is the United States Supreme Court decision *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261 (1916) which In re Angstadt, 537 F.2d 498, 503-504 (C.C.P.A. 1976) 190 USPQ 214 relies on for its holding. (BV1 page 228 last full paragraph). *Minerals Separation, Ltd. v. Hyde* is the most recent United States Supreme Court decision on enablement. The applicability of *Minerals Separation, Ltd. v. Hyde* to the rejected claim is explained in detail at BV1 pages 228-237. The Board's Decision has made no comment on *Minerals Separation, Ltd. v. Hyde*. This has resulted in errors of law in the Board's Decision. The Board's application of, *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, *In re Wright* and *In re Wands* to the claims of the present application is inconsistent with the Supreme Courts' decision

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in *Minerals Separation, Ltd. v. Hyde*. Thus the manner in which the Board has applied these CAFC decisions is an error of law.

8. Section

***In re Wright*, 999 F.2d 1557**

The Board's Decision at BD page 13, line 3 to BD page 14, line 2 quotes and paraphrase passage from *In re Wright*. These quote passages and paraphrases are accurate, but leave out substantial parts of the *In re Wright* decision that has resulted in the Board's application of *In re Wright* being an error of law. The Board's Decision inappropriately "divorces the court's holding from the facts upon which it was rendered." *Ricoh Co., Ltd. v. Quanta Computer Inc.*, 550 F.3d 1325, 1339 (Fed. Cir. 2008) resulting in the errors of law.

In re Wright states "[t]he claims on appeal are directed to processes for producing live, non-pathogenic vaccines against pathogenic RNA viruses ... vaccines produced by these processes ... and methods of using certain of these claimed vaccines to protect living organisms against RNA viruses ... Wright's specification provides a general description of these processes, vaccines, and methods of use, but only a single working example." *In re Wright*, 999 F.2d 1557, 1559 (Fed. Cir. 1993)

In re Wright further states "[t]he Examiner argued that Wright's single working example merely evidenced that Wright had obtained successfully a particular recombinant virus vaccine, and that this single success did not provide 'sufficient likelihood' that other recombinant RNA viruses could be constructed without undue experimentation." *In re Wright*, 999 F.2d 1557, 1560 (Fed. Cir. 1993) In contradistinction, Appellants' specification is not limited to one example and is not directed to living organisms. Applicants note that the Board's precedential decision in *Ex parte Jackson* supra recognizes that enablement is applied differently in different contexts when it says at 217 USPQ 808 "[t]he problem of enablement of processes carried

out by microorganisms were uniquely different from the field of chemistry generally.” (BV1 sentence bridging pages 141-142.)

In re Wright further states “that many of the appealed claims encompass vaccines against AIDS viruses and that, because of the high degree of genetic, antigenic variations in such viruses, no one has yet, years after his invention, developed a generally successful AIDS virus vaccine.”

In re Wright, 999 F.2d 1557, 1562 (Fed. Cir. 1993). In contradistinction, it is undisputed that within a very short time after Appellants’ discovery it was duplicated and other species within the scope of their claims were found in a short time, as corroborated by Poole 1988 (Brief Attachments AF and AW) which states that the chemistry involved in making high T_c superconductors does not have to be understood to make these superconductors. (BV1 page 134, lines 16-20.)

In re Wright further states in regards to an article published 5 years after the Wright patent application was filed that the article showed that “the physiological activity of RNA viruses was sufficiently unpredictable that Wright’s success in developing his specific avian recombinant virus vaccine would not have led one of ordinary skill in the art to believe reasonably that all living organisms could be immunized against infection by any pathogenic RNA virus by inoculating them with a live virus containing the antigenic code but not the pathogenic code of that RNA virus. **The general description and the single example** in Wright’s specification, directed to a uniquely tailored in vitro method of producing in chicken C/O cells a vaccine against the PrASV avian tumor virus containing live RAV-Ac virus particles, did nothing more in February of 1983 than invite experimentation to determine whether other vaccines having in vivo immunoprotective activity could be constructed for other RNA viruses.” In re Wright, 999 F.2d 1557, 1562 (Fed. Cir. 1993) (Emphasis added.) In contradistinction, there is no corresponding publication in the present appeal and in contradistinction the Poole 1988 Enablement Statement (BV3 pages 6-7), the Poole 1995

Enablement Statement (BV3 page 7) and the Poole 1996 Enablement Statement (BV3 pages 7-8) state directly to the contrary.

In re Wright further states “[t]he Examiner made reference to the difficulty that the scientific community is having in developing generally successful AIDS virus vaccines merely to illustrate that the art is not even today [years after the initial filing date] as predictable as Wright has suggested that it was back in 1983.” *In re Wright*, 999 F.2d 1557, 1563 (Fed. Cir. 1993) In contradistinction there is no evidence in the present record that persons of ordinary skill in the art have any difficulty making and testing samples that come within the scope of Appellants’ claims

In re Wright further states “Wright has failed to establish by evidence or arguments that, in February of 1983 [Wright’s filing date], a skilled scientist would have believed reasonably that Wright’s success with a particular strain of an avian RNA virus could be extrapolated with a reasonable expectation of success to other avian RNA viruses. Indeed, Wright has failed to point out with any particularity the scientific literature existing in February of 1983 that supports his position.” *In re Wright*, 999 F.2d 1557, 1564 (Fed. Cir. 1993) In contradistinction, Appellants’ extensive evidence shows that the methods of making high T_c superconductors described in their application were the same methods used to make materials prior to the earliest filing date and that other materials were made shortly after their discovery by the same methods and in addition Appellants’ have pointed out with extensive and specific particularity scientific literature existing prior to their earliest filing date which supports this position. See affidavits in Brief Attachments AH, AI, AJ, AK, AL, AM, AN and AO (the last three of which are referred to as the DST Affidavits) referred to throughout Appellants’ Brief and in Appellant’s Replies all of which are based on methods of making materials known prior to Appellant’s earliest filing date. (See for example RB page 6, lines 7-10.) And, see the Poole 1988 Enablement Statement (BV3 pages 6-7), the Poole 1995 Enablement Statement (BV3 page 7) and the Poole 1996 Enablement Statement (BV3

pages 7-8) which refer to materials made after Appellants' discovery, but which explicitly show that known methods were used to make those materials. It is unrebutted in the prosecution of the present application, including in the Board's Decision, that only method know prior to Appellants' discovery and describe in their Specification are used to make and test species that come within the scope of Appellant's claims. Thus persons of ordinary skill in the art as of Appellants' earliest filing date had a reasonable expectation of success of making and testing species that come within the scope of Appellant's claims.

. Appellant's Brief argue why *In re Wright* support Appellants' argument for why their claims are enabled at BV pages 87, 88, 90, 108, 129, 146, 208 and 218. These arguments are unrebutted in the Board's Decision

9. Section

***Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361**

The Board's Decision at BD page 14, line 3 to BD page 15, line 3 quotes passage from *Genentech, Inc. v. Novo Nordisk A/S*. (*Genentech*) These quoted passages are accurate, but leave out substantial parts of the *Genentech* decision that has resulted in the Board's application of *Genentech* being an error of law. The Board's Decision inappropriately "divorces the court's holding from the facts upon which it was rendered." *Ricoh Co., Ltd. v. Quanta Computer Inc.*, 550 F.3d 1325, 1339 (Fed. Cir. 2008) resulting in the errors of law.

In Genetech the claim found not enabled was directed to a method of producing an encoded protein consisting essentially of amino acids of human growth hormone "reciting that the encoded protein has an ..., amino acid sequence and includes the step of cleaving this conjugate protein. This process of expressing a DNA encoding a conjugate protein and using an enzyme to cleave off an undesired portion of that protein is generally known as cleavable fusion expression." *Genentech, Inc. v. Novo Nordisk A/S*, 108

F.3d 1361, 1363 (Fed. Cir. 1997)

The first paragraph quoted at DB page 14 from *Genentech* leaves out the beginning of the first sentence “[w]e agree with Novo” Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1366 (Fed. Cir. 1997). Thus this quoted paragraph is in response to an argument made by Novo which is:

Novo asserts that at the time of filing, trypsin and other like enzymes were used only to digest proteins, not to specifically and precisely cleave conjugate proteins to yield intact, useful proteins, and that the British patent explicitly indicates that trypsin would not be useful for the cleavable fusion expression of arginine-containing proteins such as hGH. Novo further argues that neither the specification nor the references cited by Genentech suggest a single amino acid sequence, out of the virtually infinite range of possibilities, that would yield hGH in a useful form when cleaved from the conjugate protein. This process of expressing a DNA encoding a conjugate protein and using an enzyme to cleave off an undesired portion of that protein is generally known as cleavable fusion expression. This process of expressing a DNA encoding a conjugate protein and using an enzyme to cleave off an undesired portion of that protein is generally known as cleavable fusion expression.

Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1366 (Fed. Cir. 1997).

In redacted form this states “Novo asserts that at the time of filing, trypsin [was] used only to digest proteins, **not to** ... cleave conjugate proteins to yield intact, useful proteins, and that the British patent explicitly indicates that trypsin would not be useful for the cleavable fusion expression of arginine-containing proteins ... Novo further argues that **neither the specification nor the references cited by Genentech suggest a single amino acid sequence,...that would yield hGH in a useful form when cleaved from the conjugate protein ...** using an enzyme to cleave off an undesired portion of that protein is generally known as cleavable

fusion expression. .” Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1363 (Fed. Cir. 1997) (Emphasis added.)

In regards to the evidence presented by the plaintiff *Genentech* states “[t]here is no dispute that the portion of the specification chiefly relied upon by Genentech ... does not describe in any detail whatsoever how to make hGH using cleavable fusion expression. For example, no reaction conditions for the steps needed to produce hGH are provided; no description of any specific cleavable conjugate protein appears. The relevant portion of the specification merely describes three (or perhaps four) applications for which cleavable fusion expression is generally well-suited and then names an enzyme that might be used as a cleavage agent (trypsin), along with sites at which it cleaves ... Thus, the specification does not describe a specific material to be cleaved or any reaction conditions under which cleavable fusion expression would work.” Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1365 (Fed. Cir. 1997)

Genentech states in regards to the patent in dispute “the specification does not provide a specific enabling disclosure concerning what the new claim recites, viz., obtaining hGH by cleaving an hGH-containing conjugate protein..... Genentech is attempting to bootstrap a vague statement of a problem into an enabling disclosure sufficient to dominate someone else's solution of the problem. This it cannot do.” Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1366 (Fed. Cir. 1997)

Thus in *Genentech* the patent did not have any working examples what it was purporting to be “new”, i.e., what they

invented a process "obtaining hGH by cleaving an hGH-containing conjugate protein."

There is no corresponding evidence in the prosecution of the present application. In contradistinction Appellants' Specification teaches specific working examples that are species within the scope of every claim rejected as not enabled including those for which the Board's Decision did not reverse the Examiner's rejection. This is undisputed in the present application. Those species were made and tested by methods known prior to Appellants' earliest filing date. This is undisputed. It is also undisputed that nothing more is needed than these known methods to make and test other species within the scope of Appellant's claims. What is new in Appellants' invention is not a method of making and testing species that come within the scope of their claims, but that ceramic materials which were not known to be superconductors were in fact superconductors having a T_c greater than or equal to 26K. There is no evidence that there are species within the scope of Appellant's claims for which the Board's Decision did not reverse the Examiner's rejection that can not be made and tested by the methods described in Appellants' Specification.

Genentech further states that the evidence showed that "no one had been able to produce any human protein via cleavable fusion expression as of the application date. If, as Genentech argues, one skilled in the art, armed only with what the patent specification discloses... could have used cleavable fusion expression to make a human protein without undue experimentation, it is remarkable that this method was not used to make any human protein for nearly a year ..., or to make hGH for five years.... This failure of skilled scientists, who were supplied with the teachings that Genentech asserts were sufficient and who

were clearly motivated to produce human proteins, indicates that producing hGH via cleavable fusion expression was not then within the skill of the art." Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1367 (Fed. Cir. 1997). Thus in *Genetech* what Genetech was claiming was new the method of "cleavable fusion expression" was not used prior to filing their patent applications and what their method claimed as being made "hGh" was not used to make hGh until 5 years after their filing date. It is clear from *Genetech* that the Genetech patent did not show that the inventors understood how to practice "cleavable fusion expression" but were alleging in the litigation that persons of skill in the art could practice "cleavable fusion expression" from their teaching without undue experimentation. *Genetech* holds that since "cleavable fusion expression" is the new feature of the invention how to do this had to be described. In contradistinction, the methods used in Appellants' Specification to make and test species were known prior to Appellants' earliest filing date and were applied quickly after their discovery by others following their teaching to make and test other species as stated by Poole 1988, Poole 1995 and Poole 1996 (See the Poole 1988 Enablement Statement (BV3 pages 6-7), the Poole 1995 Enablement Statement (BV3 page 7) and the Poole 1996 Enablement Statement (BV3 pages 7-8)). The evidence in the present application indicates exactly contrary to what the evidence indicates in *Genetech*. What Appellants' evidence shows is undisputed. Appellants' evidence shows that all that was needed to make and test other species is what Appellants' Specification teaches about the method to make and test other species. This is undisputed.

Genetech further states: "it stands to reason that if the disclosure of a useful conjugate protein and the method for its cleavage were so clearly within the skill of the art, it would have

been expressly disclosed in the specification, and in the usual detail. Patent draftsmen are not loath to provide actual or constructive examples, with details, concerning how to make what they wish to claim." Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1367 (Fed. Cir. 1997). (Emphasis added.) In contradistinction, Appellants' Specification has provided "actual [and] constructive examples, with details, concerning how to make [and test] what they [have] claimed."

10. Section

In re Wands, 858 F.2d 731

The Board's Decision at BD page 15, line 4 to BD page 15, last line, quotes passage from *In re Wands*. These quoted passages are accurate, but leave out substantial parts of the *In re Wand* decision that has resulted in the Board's application of *In re Wand* being an error of law. The Board's Decision inappropriately "divorces the court's holding from the facts upon which it was rendered." Ricoh Co., Ltd. v. Quanta Computer Inc., 550 F.3d 1325, 1339 (Fed. Cir. 2008) resulting in the errors of law.

Appellants note that *In re Wands* is directed to a biotechnology invention. But, unlike *In re Wright* and *Genentech* the claims under review for lack of enablement in *In re Wands* were found enabled.

The first quotation listed by the Board's Decision at page 15, lines 4-7, is :

Enablement is not precluded by the necessity for some experimentation such as routine screening.
n19
In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988)

In the Board's Decision the citations in footnote 19 are left out which are:

Atlas Powder Co. v. E.I. DuPont De Nemours & Co.,
750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir.

1984); *In re Angstadt*, 537 F.2d at 502-504, 190 USPQ at 218; *In re Geerdes*, 491 F.2d 1260, 1265, 180 USPQ 789, 793 (CCPA 1974); *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270-71, 61 L. Ed. 286, 37 S. Ct. 82 (1916).

In each of these decisions claims being reviewed for lack of enablement were found enabled essentially because only "routine screening" was needed to find species that came within the scope of the claims under review. The claims under review in *In re Wands* were found enabled essentially for the same reasons. Appellants' Brief argued that only routine experiments are needed to make and test species within the scope of all claims rejected for lack of enablement. Appellants' argued that *In re Wands*, *In re Angstadt* and *Minerals Separation, Ltd. v. Hyde* supported their argument. The Board's Decision has essentially ignored Appellants' argument by not responding to it or acknowledging it. These decisions found "routine screening" using known techniques was sufficient to determine species that came within the scope of the claim under review which were thereby enabled. This is the principle of law that should apply to the claims presently under appeal and for which the Board's Decision has not reversed the Examiner's rejection. Appellants' Brief and Appellants' Replies refers to *In re Angstadt* at BV1, pages 46, 49, 70, 73, 74, 95, 97, 98, 101 – 108 (these pages have a comprehensive discussion of this decision's applicability to the claims rejected in the present application), 128, 135, 136, 138, 146, 152, 154, 169, 223, 224, 232 and RB pages 20, 21 and 23. Appellants' Brief refers to *Minerals Separation, Ltd. v. Hyde* at BV1 pages 228 to 237.

The second quotation from *In re Wands* listed by the Board's Decision at page 15, lines 9-17, includes the following quotation from *In re Angstadt* the statement "[t]he test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of

guidance with respect to the direction in which the experimentation should proceed.” (Emphasis added.) It is undisputed in the present appeal that the experimentation to determine other species of high T_c materials within the scope of the claims is what was known prior to Appellants’ earliest filing date which is thus routine. Thus following *In re Wands* a considerable amount of this type of experimentation is permissible.

Appellants note that the passage quoted above from *In re Wands* states that a “considerable amount” of “routine” experimentation or “reasonable guidance with respect to the direction in which the experimentation should proceed” is needed to satisfy enablement but not both routine experimentation and reasonable guidance is needed.

In re Wands states in regards to the claims under review “[t]he nature of monoclonal antibody technology is that it involves screening hybridomas to determine which ones secrete antibody with desired characteristics. Practitioners of this art are prepared to screen negative hybridomas in order to find one that makes the desired antibody.” *In re Wands*, 858 F.2d 731, 740 (Fed. Cir. 1988)

Similarly, in Appellants’ claims only require routine methods of fabrication and testing which practitioners in the art are prepared to do in order to find other high T_c materials to practice the claimed invention.

Appellants’ Brief shows why *In re Wands* supports their argument that their claims are enabled at BV1 pages 46, 47, 49, 69, 83, 91, 111, 124, 125 to 128, 170, 223, and 224 and RB page 52. These arguments are unrebutted in the Board’s Decision.

11. Section

***Minerals Separation, Ltd. v. Hyde Minerals Separation, Ltd. v. Hyde*
242 U.S. 261**

The paragraph bridging BV1 pages 228 229 states:

The CCPA states in *In re Angstadt*, 537 F.2d 498, 503-504 (C.C.P.A. 1976) 190 USPQ 214 citing the United States Supreme Court decision *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270-71 (1916):

To require disclosures in patent applications to transcend the level of knowledge of those skilled in the art would stifle the disclosure of inventions in fields man understands imperfectly, like catalytic chemistry. The Supreme Court said it aptly in *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270-71 (1916), in discussing the adequacy of the disclosure of the froth flotation process of ore separation:

Equally untenable is the claim that the patent is invalid for the reason that the evidence shows that when different ores are treated preliminary tests must be made to determine the amount of oil and the extent of agitation necessary in order to obtain the best results. Such variation of treatment must be within the scope of the claims, and the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter. The composition of ores varies infinitely, each one presenting its special problem, and it is obviously impossible to specify in a patent the precise treatment which would be most successful and economical in each case. The process is one for dealing with a large class of substances and the range of treatment within the terms of the claims, while leaving something to the skill of persons applying the invention, is clearly sufficiently definite to guide those skilled in the art to its successful application, as the evidence abundantly shows. This satisfies the law. *Mowry v. Whitney*, 14 Wall. 620; *Ives v. Hamilton*, 92 U.S. 426, and *Carnegie Steel Co. v. Cambria Iron Co.*, 185 U.S. 403, 436, 437 [Emphasis added.]

The text in bold shall be referred herein to as The Supreme Court *Minerals v. Hyde* Enablement Statement.

12. Section

The Board's Decision states at page 17 , lines 17 -20:

The Examiner explicitly criticizes Appellants' affidavit evidence as "conclusory only" (Ans. 15) although no specific reasons are given for considering the affidavits to be "conclusory only" with respect to the claims discussed in this subsection.

Appellants disagree that the language quoted from Board's Decision in Section 6.3 accurately represents the facts.

Appellants Reply page 3, lines 3-7 states:

The Examiner's Answer is essentially verbatim copied from the Office Action dated 07/28/2004 and the Final Action. The Examiner's Answer from page 5, line 12 to page 20, line 6 is essentially copied from the Office Action of 07/28/2004. The Examiner's Answer from page 20, line 7 to page 29, line 11, is essentially copied from the Final Action.

Thus Appellants submit that the referred to comment, "conclusory only" from page 15 of the Examiner's Answer is referring only to Appellants' affidavits submitted prior to OA07282004 and not to what Appellants have referred to as the DST Affidavits (Brief Attachments AM to AO) which were submitted after OA07282004 or the declaration of Bednorz (Brief Attachment AQ), which was submitted after the Final Action, or the Affidavit of Newns (Brief Attachment AQ) which was submitted after the Final Action.

Appellants specifically noted this in Appellants Reply at page 6, lines 1-20, which states (Text in bold square brackets is added for clarity):

At page 12 of the Examiner's Answer, the first sentence of the last paragraph states "[t]he Applicants also have submitted three affidavits attesting to the applicants' status as the discoverers of materials that superconduct > 26°K." At page 15 of the Examiner's Answer, lines 14-15 states "3 affiants." As stated in the Brief in this passage the Examiner incorrectly states Applicants submitted three affidavits. Prior to the Office Action of 07/28/2004 [which is incorporated into the Final Action at page 4 thereof] Applicants submitted the five affidavits of Brief Attachments AH, AI, AJ, AK, AL of Mitzi, Dinger, Tsuei, Shaw and Duncombe, respectively. Subsequent to the Office Action of 07/28/2004 Applicants submitted the expanded affidavits of Shaw, Tsuei and Dinger of Brief Attachments AM, AN and AO, respectively **[referred to in Appellants' Brief as the DST Affidavits]**. The expanded affidavits set forth particular facts to support the conclusions that all superconductors based on Applicants' work behave in the same way and that one skilled in the art

can make those superconductors without undue experimentation. In the Answer the Examiner has not responded to these affidavits. In addition subsequent to the Office Action of 07/28/2004 Applicants submitted the Newns Affidavit (Brief Attachment AP) and declaration of co-inventor Georg Bednorz (Brief Attachment AQ). **[Appellants note that the News Affidavit and the Bednorz Declaration were submitted in response to new arguments in the Final Action and were thus submitted subsequent to the Final Action]** In the Answer the Examiner has not responded to the Newns Affidavit or the Bednorz declaration. The Examiner has not rebutted this evidence (including the other evidence submitted by Applicants) and thus has not made a prima facie case of lack of enablement.

Thus as agued in the Request to Reopen Prosecution the Board's Decision's reliance on facts and arguments not relied on by the Examiner's Answer which result in the Board's Decision being more in the nature of an action on the merits than a decision on appeal. Appellant's request the Board grant Appellants' Request to Reopen Prosecution submitted herewith.

13. Section

The Board's Decision from BD page 17 two lines from the bottom to page 19 5 lines from the bottom, focuses on specific types of material taught in Appellant's Specification. It is noted that it is unrebutted that all of Appellants' claims have written description support in the specification. Appellant's Brief at BV1 page 104, lines 10-16, states:

The CCPA in *In re Marzocchi*, 58 CCPA 1069, 439 F. 2d 220, 169 USPQ 367, 369-370 (1971) states:

The only relevant concern of the Patent Office under these circumstances should be over the *truth* of any such assertion. The first paragraph of §112 requires nothing more than objective enablement. How such a teaching is set forth, either by the use of illustrative examples or by broad terminology, is of no importance.

This quoted language from *In re Marzocchil* is directed to enablement in the context of a chemical. Thus "broad terminology" is sufficient to satisfy enablement and specifically identifying species that com within the sope of the claims is not and absolute requirement.

The legal authority cited by Appellant supports this position.

BV1, page 47 7 lines from the bottom to page 48 line 25, states:

The CAFC has stated in *Sri Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985); 227 USPQ 577, 586 that this is not necessary:

The law does not require the impossible. Hence, it does not require that an applicant describe in his specification every conceivable and possible future embodiment of his invention. The law recognizes that patent specifications are written for those skilled in the art, and requires only that the inventor describe the "best mode" known at the time to him of making and using the invention. 35 U.S.C. § 112.

Applicants have shown that persons of ordinary skill in the art as of Applicants discovery can practice Applicants' claims to their full scope and it is Applicants' understanding of the Examiner's statements that the Examiner has agreed with this.

The CAFC has further stated:

An applicant for patent is required to disclose the best mode then known to him for practicing his invention. 35 U.S.C. § 112. He is not required to predict all future developments which enable the practice of his invention in substantially the same way. *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1362 (Fed. Cir. 1983);39 USPQ2d 1065.

This is exactly what applicants have done. Thus Applicants' claims are enabled.

The CAFC further states in regards to future developments:

Enablement does not require the inventor to foresee every means of implementing an invention at pains of losing his patent franchise. Were it otherwise,

claimed inventions would not include improved modes of practicing those inventions. Such narrow patent rights would rapidly become worthless as new modes of practicing the invention developed, and the inventor would lose the benefit of the patent bargain. *Invitrogen Corp. v. Clontech Labs., Inc.*, 429 F.3d 1052, 1071 (Fed. Cir. 2005)" And, "Our case law is clear that an applicant is not required to describe in the specification every conceivable and possible future embodiment of his invention." *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1344, 60 U.S.P.Q.2D (BNA) 1851 (Fed. Cir. 2001).

The Examiner's position in regards to the enablement of Applicants' claims is inconsistent with the CAFC's position that "[e]nablement does not require the inventor to foresee every means of implementing an invention." Thus Applicants' claims are enabled and the rejection should be reversed. The Examiner uses the term predictable with the meaning of "foresee." The correct meaning of the term "predictable" for enablement purposes is "determinable" without undue experimentation.

The Board's Decision has not commented on nor rebutted Appellants' citation to and application of *Rexnord* to show why their claims on appeal are enabled, including those for which the Board has not reversed the Examiner's rejections, and that enablement "[e]nablement does not require the inventor to foresee every means of implementing an invention" as stated in *Rexnord*. That is, enablement does not require inventors to predict or foresee "every conceivable and possible future embodiment of [their] invention" at the time the application is filed

BV1 page 113, 8 lined from the bottom to page 114, line 15, states;
The CCPA in *In re Robins* 166 USPQ552, 555 has stated

Both the Examiner and the board seem to have taken the position that in order to "justify," as the Examiner said, or to "support," as the board said, broad generic language in a claim, the specification must be equally broad in its meaning, and use in examples, of representative

compounds encompassed by the claim language. This position, however, misapprehends the proper function of such disclosure. Mention of representative compounds encompassed by generic claim language clearly is not required by §112 or any other provision of the statute. But, where no explicit description of a generic invention is to be found in the specification (which is not the case here) mention of representative compounds may provide an implicit description upon which to base generic claim language. ... Similarly, representative examples are not required by the statute and are not an end in themselves. Rather, they are a means by which certain requirements of the statute may be satisfied. Thus, inclusion of a number of representative examples in a specification is one way of demonstrating the operability of a broad chemical invention and hence, establishing that the utility requirement of § 101 has been met. It also is one way of teaching how to make and/or how to use the claimed invention, thus satisfying that aspect of § 112.

Thus Applicants are not limited, as the Examiner has done, to claims only covering the specific examples that they have described in the specification.

The Board's Decision has not commented on nor rebutted Appellants' citation to and application of *In re Robbins* to show why their claims on appeal are enabled, including those for which the Board has not reversed the Examiner's rejections, and that the scope of enablement in a broadly described and claimed invention, even in a chemical art, is not limited by the representative examples described in Appellants' Specification which is what the Board's Decision appears to have done. Since, enablement does not require inventors to predict or foresee "every conceivable and possible future embodiment of [their] invention" at the time the application is filed, as stated in *Rexnord Corp. v. Laitram Corp* (Supra), the examples cited in Appellants' Specification following *In re Robbins* does not limit enabled claims to these examples. It is Appellants' position that this applies to the claims for which the Board's Decision has not reversed the Examiner's rejection. It is Appellants' position

that under the facts and circumstances of the present application this applies to what the Board's Decision has indicated is allowable at page 7, lined 2-7, i.e. Appellants should not be limited to this scope of enablement. .

Appellants' Brief at BV1 page 127, lines 6-15 quoting the MPEP states:

The fact that experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation. In re Certain Limited-Charge Cell Culture Microcarriers, 221 USPQ 1165, 1174 (Int'l Trade Comm'n 1983), *aff'd. sub nom.*, Massachusetts Institute of Technology v. A.B. Fortia, 774 F.2d 1104, 227 USPQ 428 (Fed. Cir. 1985).

See also In re Wands, 858 F.2d at 737, 8 USPQ2d at 1404. The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue. In re Angstadt, 537 F.2d 498, 504, 190 USPQ 214, 219 (CCPA 1976).

In the present application there is no direct evidence that anything other than what was known prior to Appellant's earliest filing date is need to make and use sumps that come within the scope of the claims for which the Board's Decision has not reversed the Examiner's rejection.

BV1 paragraph bridging pages 124 and 125, states

The CAFC in Enzo at 52 USPQ2d 1129, 1138 cites In re Vaeck 20 USPQ2d 1438 stating:

It is well settled that patent Applicants are not required to disclose every species encompassed by their claims, even in an unpredictable art. However, there must be sufficient disclosure, either through illustrative examples or terminology, to teach those of ordinary skill how to make and use the invention as broadly as it is claimed.

It is undisputed that Appellants have provided "illustrative examples or terminology to teach those of ordinary skill how to make and use the invention as broadly as it is claimed " (Emphasis added.) Thus terminology alone is sufficient to satisfy enablement even in an unpredictable art. As stated throughout Appellants' Brief the chemistry involved in making samples that come within the scope of the claims that the Board's Decision has not reversed the Examiner's rejection does not have to be understood to make samples by known methods and to test them by known methods. Thus the art of making high T_c superconductors does not have the so called unpredictability, that is undeterminability, that is associated with "most chemical reactions" Appellants note that *In re Fisher* 427 F.2d 833 does not include all chemical reactions as unpredictable. (See BV1 page 44, lines 1-7.)

{{{I stopped at Enzo = finish the rest}}}

BV1 page 232, line 14 to page 233, line 32, states:

The CCPA in *In re Angstadt*, 537 F.2d 498, 503 (C.C.P.A. 1976) 190 USPQ 214 commenting on the dissent states:

The dissent's reliance on *In re Rainer*, 54 CCPA 1445, 377 F.2d 1006, 153 USPQ 802 (1967), is misplaced. If Rainer stands for the proposition that the disclosure must provide "guidance which will enable one skilled in the art to determine, with reasonable certainty before performing the reaction, whether the claimed product will be obtained" (emphasis in original), as the dissent claims, then all "experimentation" is "undue," since the term "experimentation" implies that the success of the particular activity is uncertain. Such a proposition is contrary to the basic policy of the Patent Act, which is to encourage disclosure of inventions and thereby to promote progress in the useful arts.

In the present application the Examiner's position (proposition) is requiring what the CCPA states is not required and "[s]uch a proposition is contrary to the basic policy of the Patent Act, which is to encourage disclosure of inventions and thereby to promote progress in

the useful arts." The certainty that the Examiner is requiring is beyond what the Supreme Court requires and what the Patent Act requires.

The CCPA applies the Supreme Court *Minerals v. Hyde* Enablement Statement in In re Bosv, 53 C.C.P.A. 1231, 1234-1235 (C.C.P.A. 1966) 149 U.S.P.Q. (BNA) 789 stating:

The Supreme Court set out some guidelines with reference to the sufficiency of a specification to disclose an invention in such a manner as will enable one of ordinary skill in the art to make it in *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261 (1929), at 270-271: [Stating the Supreme Court *Minerals v. Hyde* Enablement statement quoted above.]

The CCPA also cite *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261 in In re Corr, 52 C.C.P.A. 1505, 1508 (C.C.P.A. 1965) 146 U.S.P.Q. (BNA) 69 and states "The certainty required in patents is not greater than that which is reasonable, having regard to the subject matter involved. *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261." In re Hudson, 40 C.C.P.A. 1036, 1040 (C.C.P.A. 1953)

The CAFC adopted the Supreme Court *Minerals v. Hyde* Enablement Statement in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, stating:

The district court invalidated both patents for indefiniteness because of its view that some "trial and error" would be needed to determine the "lower limits" of stretch rate above 10% per second at various temperatures above 35 degrees C. That was error.

Assuming some experimentation were needed, a patent is not invalid because of a need for experimentation. *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270-71, 61 L. Ed. 286, 37 S. Ct. 82 (1916).

A patent is invalid only when those skilled in the art are required to engage in undue experimentation to practice the invention. *In re Angstadt*, 537 F.2d 498, 503-04, 190 USPQ 214, 218 (CCPA 1976). There was no evidence and the court made no finding that undue experimentation was required.

W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1557 (Fed. Cir. 1983)220 U.S.P.Q. (BNA) 303 (1983) (Emphasis added.)

14. Section

Appellants note that the Board's Decision at page 20 , lines 17- 20 in referring to the category of claims it has identified under Subsection II at page 17 states(this will be referred herein as BD Category II Claims and the materials referred to as BD Category II Materials) :

the record before us establishes that the experimentation needed to make and test the compositions under consideration is merely routine, and the Examiner does not contend otherwise

and at BD page 22 line 7, states:

[only] limited and routine experimentation [is] necessary to make and test such materials

It has been Appellants' position throughout the prosecution of this application which is restated throughout Appellants' Brief and Appellants' Replies. For example BV1 page 115, lines 11-12 in states "[t]he Examiner cites no example of a species that comes within the scope of Applicants' claims that cannot be made following Applicants' teaching." RB page25, lines 13-19, states " [i]n the present Application the Examiner has provided not [no, sic] reason for why species that come within the scope of the claims rejected for lack of enablement cannot be made and used." The Total Final Rejection or Examiner's Answer identifies none – the Board's Decision identifies none. The two passages quoted above from the Board's Decision are stated in association with the following statement from BD page 20, lines 15-20, in regards to the :

The quantity of experimentation is limited to transition metal oxides in combination with only 18 rare earth and rare earth-like elements or in combination with only six alkaline earth elements

In regards to the Subsection II category of materials. In essence the combination of these three quoted sections of the Board's Decision states that there is a finite, relatively small number of materials in the Subsection II

category of materials and since only routine experimentation are necessary to make and test these material, they are enabled. Appellants agree with this conclusion as it applies only to such materials, but not with the implication that Appellants' claims (for which the Board has not reversed the Examiner's rejections) which capture species outside of BD Category II Materials are not enabled.

As has been argued in details throughout the prosecution of this application and in Appellants' Brief and Appellants' Replies and as will be argued in detail below in response to the new arguments appearing for the first time in the prosecution of this application in BD pages 17-21, only routine screening is involved in finding other species including outside of BD Category II Materials but which come within the scope of those claim for which the board has not reversed the Examiner's rejection. Collectively such species will be referred to herein as the Delta Genus. Claim for which the Board's Decision did not reverse the Examiner's rejections shall be referred to as Category III Claims.). Appellants note that their specifically made embodiments are species within the scope of every claim including of each Category III Claims. Appellants also note that the BD Category II Materials are a subgenus of the broadest recitation of the high T_c element of the broadest claims of the Category III Claims. Since some of the Category III Claims have other limitations there is significant overlap with those. Thus the Delta Genus(s) are not directed to an invention of a different kind than BD Category II Materials. There is no evidence that species of the Delta Genus(s) cannot be made and tested in the same way as the BD Category II Materials which the Board's Decision has found enabled. Each Category III claim has within its scope a species found enabled by the Examiner and a species found enabled by the Board's Decision and there is no evidence that any of the other species cannot be made and tested following Appellants' teaching. In particular the Known Principles of Ceramic Science Claims are explicitly limited to what a person of ordinary skill in the art could make as of Appellants' earliest filing date. Appellants note, as

stated in the Brief (see Examiner's Third Enablement Statement VB3 page 4) Appellants claims are not chemical composition claims. Appellants' chemical composition claims were found anticipated over known materials which inherently had the high T_c property. The Board's analysis appears to forget that important issue. (See Examiner's Second Enablement Statement VB3 pages 3- 4.)

15. Section

Appellants note that the Board's Decision at page 21, lines 21-24 in referring to the category of claims it has identified under Subsection II at page 17 states(the BD Category II Claims and BD Category II Materials as defined above):

As explained above, Appellants' Specification provides a reasonable amount of direction or guidance in identifying the compositions in question as possessing high temperature superconductive characteristics.

The implication of this statement is that the *In re Wands* factor "the amount of direction or guidance presented" necessarily requires the specific identification of species for there to be enablement. Appellants respectfully submit that this implication is ena error of law.

BV1 page 21, lines 4-4, states:

As described below no undue experimentation is needed to make such species and therefore, Applicants do not have to provide "guidance" on how to do experimentation to make such species. Guidance is only needed when undue experimentation would be needed without such guidance to make species by experiments that were not actually performed by Applicants.

BV1 Page 51, lines 9-18, states:

Again as with the patent legal terms "predictability" and "unpredictability," the patent legal term "guidance" is directed to "the manner and process of making and using [the invention]." When the teaching of a patent application requires undue experimentation to practice the invention, guidance on how to carry out the experiment can result in

enablement even though the experimentation is not recorded as a performed example in the specification. As noted in the summary of the invention section above Applicants' teaching identifies properties that Applicants' examples possess which later discovered species also possess. Thus Applicants' teaching has more than is minimally necessary to satisfy enablement.

BV1 page 51, 8 lines from the bottom to page 52, line 4 states:

The Board in Ex parte Jackson 217 USPQ 804 and 807 states "a considerable amount of experimentation is permissible if it is merely routine." As stated by the Examiner the experimentation to find other species is merely routine. The Board in Ex parte Jackson goes on to state if the experimentation is not merely routine there is enablement "if the specification in question provides excessable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to produce a desired embodiment of the invention claimed." 217 USPQ 804, 807. Thus guidance is needed when the experimentation is not merely routine. Since there is no evidence in the present application that anything other than routine experimentation is needed to determine other species, than specifically described by Applicants', the guidance provided by Applicants' teaching is sufficient to satisfy enablement.

It is undisputed that the methods to make and test species that come within the scope of the claims from which the Board has not reversed the Examiner's rejection were known prior to Appellants' earliest filing date. Guidance is not predicting in advance what species will work, but is guidance on how to "make and use" the claimed invention as explicitly stated in 35 USC 112, paragraph one. See the legal authority cited in Appellants' Brief and Appellants' Replies, some of which is reproduced herein, in particular in Section 13. If all species that come within the scope of a claim do not have to be foreseen in advance to satisfy enablement then the implication of the Board's statement quoted above is legal error.

BV1 page 96, lines 19-33, state in regard to the Board's precedent Ex parte Jackson:

The Board states at 217 USPQ 806 "The issue squarely raised by [the] rejection [of claims] is whether or not a description of several newly discovered strains of bacteria having a particularly desirable metabolic property in terms of the conventionally measured culture characteristic and a number of metabolic and physiological properties would enable one of ordinary skill in the relevant art to independently discover additional strains having the same specific desirable metabolic property, i.e., the production of a particular antibiotic." Thus Applicants respectfully submit that the Board in *Ex parte Jackson* would find a disclosure enabling that permits "one of ordinary skill in the relevant art to independently discover additional" high Tc materials that come within the scope of Applicants' generic claims, in particular in view of the Examiners' finding that "The examiner does not deny ... that once a person of skill in the art knows of a specific type of composition which is superconducting at greater than or equal to 26K, such a person of skill in the art, using the techniques described in the application, ... can make the known superconductive compositions." (Emphasis in the original.)

The Board's Decision is in conflict with the Board's precedent and is thus legal error to require knowledge in advance of species that fall outside of the scope of the found allowable by the Board's decision but within the scope of the claims that the Board's Decision has not reversed the Examiner's rejections. .

As noted above at BD page 22 line 7, the Board's Decision acknowledges referring to Category II Materials that "[only] limited and routine experimentation [is] necessary to make and test such materials." There is no evidence that anything other than this "limited and routine experimentation [is] necessary to make and test ..materials" tha fall outside the scope of the Category II materials, but within the scope of the materials recited as elements ot he claims for which the Board's decision hs not reversed the Examiner's rejections.

{{{Stopped looking for guidance quotes at page 97}}}

16. Section

The Board' Decision in the sentence bridging page 21-22 states

For reasons detailed below, the art of high temperature superconductivity is generally unpredictable in that there is generally no reasonable expectation of successfully achieving high temperature superconductivity.

Appellants' disagree that "predictability" as that term is used in the patent law requires that there be a "reasonable expectation of successfully achieving high temperature superconductivity," but means within the meaning of the patent law a reasonable expectation of success in making samples for which there is a reasonable expectation of success in testing to determine if those samples have high temperature superconductivity. Appellants arrived at this position in Appellants' Brief and Appellants' Replies by a close and detailed analysis of legal authorities. The Board's Decision has not responded to that analysis nor commented on it. If all species that come within the scope of a claim do not have to be foreseen at the time of filing of an application (See legal authority cited in Section 13 above, e.g. enablement does not require inventors to predict or foresee "every conceivable and possible future embodiment of [their] invention" at the time the application is filed, as stated in *Rexnord Corp. v. Laitram Corp* (Supra)), to satisfy enablement in the context of the present application there does not have to be a reasonable expectation of foreseeing all species that have the high temperature property. Since what the Board's Decision states is equivalent to what the cited legal authority says is not necessary, the Board's statement above is legal error. The statement quoted from the Board's Decision above requires "foreseeability" and is thus legal error.

It is Appellants' position as extensively states in Appellants' Brief and Appellants' Replies that if species within the scope of a claims are "determinable" by experiment that only involves known methods to make the materials, known methods to test the materials and there is no evidence that species cannot be made by those methods, the genus claims to those

species are enabled. It is Appellants' position that this is a predictable art because it is understood how to make and test species that are made to determine if those species have the desired property. Appellants evidence conclusively shows this BV1 page 46 last 15 lines to page 47, line 7, state (This is referred to as the Poole 1988 Enablement Statement See BV3 page 6):

Applicants have clearly shown that only routine experimentation is needed to fabricate other samples to practice Applicants' claimed invention. See the DST AFFIDAVITS (Affidavits of Shaw of 04/14/2005, Affidavit of Dinger of 04/04/2005 and Affidavit of Tsuei of 04/04/2005, Brief Attachment AM, AN and AO, respectively, collectively referred to herein as the DST AFFIDAVITS). Applicants respectfully disagree that the field of High Tc superconductivity is unpredictable within the meaning of the US patent law as suggested by the Examiner. See the affidavit of Newns submitted 04/12/2006 (Brief Attachment AP). The complex chemistry does not have to be understood to fabricate samples as stated in the book "Copper Oxide Superconductors" by Charles P. Poole, et al. (See ¶ 48 of DST AFFIDAVITS and Brief Attachment AW) which states at page 59:

[c]opper oxide superconductors with a purity sufficient to exhibit zero resistivity or to demonstrate levitation (Early) are not difficult to synthesize. We believe that this is at least partially responsible for the explosive worldwide growth in these materials.

Poole further states at page 61:

[i]n this section three methods of preparation will be described, namely, the solid state, the coprecipitation, and the sol-gel techniques (Hatfi). The widely used solid-state technique permits off-the-shelf chemicals to be directly calcined into superconductors, and it requires little familiarity with the subtle physicochemical process involved in the transformation of a mixture of compounds into a superconductor.

It is undisputed that the materials that come within the scope of Appellants' claims are not difficult to synthesize and little familiarity with the chemistry

going on is required. Species within the scope of Appellants' claims are readily determinable. Appellants take this to mean predictable.

In re Wands (Supra), *In re Angstadt* (Supra) and *Mineral Separation v. Hyde* (Supra) support Appellant's position and do not support the Board's Decision. It is unrebutted in the prosecution of the present application that species within the scope of Appellants' claims for which the Board has not reversed the Examiner's rejection reciting a superconducting element outside of the scope of a Category II material are "determinable" by experiment that only involves known methods to make the materials, known methods to test the materials and that there is no evidence that these species cannot be made by those methods. The only issue appears to be whether the effort to determine them should be considered "undue experimentation." It is Appellants' position that this is not undue experimentation. Since the effort to determine whether one particular species, which can be made and tested by known methods to determine if the species has the high temperature superconductive property, is not undue, it is Appellants' position that the effort to determine whether a large number of such species in the aggregate is not undue. *In re Wands* (Supra), *In re Angstadt* (Supra) and *Mineral Separation v. Hyde* (Supra) support this view. Appellants' Brief and Appellants' Replies show why *In re Wands* supports their argument that their claims are enabled at BV1 pages 46, 47, 49, 69, 83, 91, 111, 124, 125 to 128, 170, 223, and 224 and RB page 52. Appellants' Brief and Appellants' Replies show why *In re Angstadt* supports their argument that their claims are enabled at t BV1, pages 46, 49, 70, 73, 74, 95, 97, 98, 101 – 108 (these pages have a comprehensive discussion of this decision's applicability to the claims rejected in the present application), 128, 135, 136, 138, 146, 152, 154, 169, 223, 224, 232 and RB pages 20, 21 and 23. Appellants' Brief shows why Appellants' Brief refers to *Minerals Separation, Ltd. v. Hyde Minerals Separation, Ltd. v. Hyde* supports their argument that their claims are enabled at BV BV1 pages 228 to 237.

In re Wands is directed to a biotechnology invention wherein a broad method claim was found enabled based "Only nine hybridomas [that] were actually analyzed beyond the initial screening for HBsAg binding. Of these, four produced antibodies that fell within the claims," In re Wands, 858 F.2d 731, 739 (Fed. Cir. 1988)

In re Angstadt states "there is no magical relation between the number of representative examples and the breadth of the claims" with respect to enablement. *In re Borkowski*, 57 CCPA 946, 952-53, 422 F.2d 904, 910, 164 USPQ 642, 646 (1970). In re Angstadt, 537 F.2d 498, 505 (C.C.P.A. 1976)

Notwithstanding the invention in *In re Angstadt* is characterized as unpredictable a relatively small number of examples was sufficient to enable a very broad claim: "[a]lthough appellants' specification shows some 38 examples (embodiments) within the broad scope of the claims, this number is minute in comparison with the immense number of combinations of organometallic catalysts and alkylaromatic hydrocarbons within that scope." In re Angstadt, 537 F.2d 498, 507 (C.C.P.A. 1976)

In *Mineral Separation v. Hyde* (Supra) a claim was found enabled to a method of treating ore based on a small number of examples even though "[t]he composition of ores varies infinitely." See the *Mineral Separation v. Hyde* Enablement Statement above.

The Board's Decision if applied to *In re Wands* (Supra), *In re Angstadt* (Supra) and *Mineral Separation v. Hyde* (Supra) would find the the CAFC, the CCPA and the United States Supreme Court, respectively, made an error in these decisions. This is an error of law.

17. Section

The Board's Decision at page 26, last line to page 27 line 4 states:

We do not share Appellants' premise that the capability of an artisan to make and test embodiments other than those allowed by the Examiner establishes predictability in the art of high temperature superconductivity. On this record, Appellants have not shown the asserted correlation between capability and predictability.

Appellants' have contended that the patent law term "predictable" has the meaning of determinable and has supported that by citations to legal authority. The Board's Decision does not rebut Appellants' argument and has made no comment on that argument but only has stated what is quoted in the above paragraph. In *In re Wands* Judge Newman disagrees with this comment from the Board's Decision. BV1, page 47, line 13-24, states:

In *In re Wands* 858 F.2d 731, 742 (Fed. Cir. 1988); 8 U.S.P.Q.2D 1400, 1408 Judge Newman concurring in part, dissenting in part stated "[The inventor] must provide sufficient data or authority to show that his results are reasonably predictable within the scope of the claimed generic invention, based on experiment and/or scientific theory. " Thus experiment or theory is sufficient to establish predictability. And as stated above by the Examiner "a person of skill in the art, using the techniques described in the application, which included all principles of ceramic fabrication known at the time the application was initially filed, can make the known superconductive compositions." There is no requirement to know in advance all examples enabled by their teaching. Thus the field of High Tc superconductivity is predictable within the meaning of *In re Wands*. Species within the scope of Applicants' claims are determinable without undue experimentation and by well known testing.

Thus the statement from the Board's Decision quoted above is legal error since "predictability" can be "based on experiment and/or scientific theory" as stated by Judge Newman. The Board's Decision at BD page 27, line 3—4 states "[o]n this record, Appellants have not shown the asserted correlation between capability and predictability." Appellant's respectfully disagree Judge Newman in the passage quoted above establishes the correlation. In addition the correlation is clearly established by the Poole

1988 Enablement Statement (See BV3 page 6), quoted above which states that little familiarity with the chemistry involved is required in making species that come within the scope of Appellants' claims and are not difficult to synthesize.

18. Section

The Board's Decision at page 23 line 13 to page 24 line 10, is directed to claims 438, 440 and 536. The Board's Decision does not provide the required claim construction for the "means for conducting a superconductive current" claim element of claims 438, 440 and 536

The last paragraph of BV1 page 43 states:

In Claims 438, 440 and 536 the "means for conducting a superconductive current" is in means plus function form. MPEP § 2181 Part II states "35 U.S.C. 112, sixth paragraph states that a claim limitation expressed in means-plus-function language 'shall be construed to cover the corresponding structure described in the specification and equivalents thereof.'"

Claims 438, 440 and 536 have been rejected under 35 U.S.C. 112, first paragraph, for lack of enablement. Appellants have appealed this rejection. The Board's Decision does not provide a construction of the limitation "means for conducting a superconductive current". The Board is required to give this means plus function limitation a construction. Without the required construction Appellants do not know what meaning the Board considers this limitation to have and thus cannot in this Request for Rehearing respond to or rebut the Board's Decision sustaining the Examiner's rejection of these claims. The Examiner in the Total Final Action and Examiner's Answer did not give this mean plus function limitation a construction. This is required. In *In re Donaldson* the CAFC states:

the PTO was required by statute to look to [the appellant's] specification and construe the "means" language recited in the ... claim ... as limited to the corresponding structure disclosed in the specification and equivalents thereof.

In re Donaldson Co., 16 F.3d 1189, 1195 (Fed. Cir. 1994)

In *in re Freeman* the CAFC states citing *In re Donaldson*:

Claim construction is a question of law which we review de novo. *In re Donaldson Co., Inc.*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994)

In re Freeman, 30 F.3d 1459, 1464 (Fed. Cir. 1994)

In *in re Baker Hughes* the CAFC states citing *In re Freeman*:

claim construction by the PTO is a question of law that we review de novo, see *In re Freeman*, 30 F.3d 1459, 1464, 31

In re Baker Hughes Inc., 215 F.3d 1297, 1301 (Fed. Cir. 2000)

Appellants request the Board to provide its construction of the limitation "means for conducting a superconductive current" in claims 438, 440 and 536 as required by the cited decisions and to grant Appellants' request to reopen prosecution so that Appellants can properly respond to this rejection.

The only comment that the Board's Decision make in regard to claims 438, 440 and 536 is in the last paragraph of page 23 and the first paragraph of page 24. The last paragraph of the Boards' Decision at BD page 23 states in regards to Appellants' argument in the Brief "[t]his argument is based on the proposition that claims 438, 440, and 536, because of their means plus function form, have the same scope as the claims which are considered to be enabled by the Examiner," and states in the first paragraph at BD page 24 "

This argument is unconvincing. As Appellants acknowledged during the Oral Hearing of 10 June 2009, the sixth paragraph of 35 U.S.C. § 112 requires that the means plus function language of the claims under review cover not only the corresponding structure or material described in the Specification but also the equivalents thereof whereby these claims are broader than those considered to be enabled by the Examiner (see Hearing Transcript 3-5). Therefore, the

mere fact that the Examiner considers more narrow claims to be enabled is an inadequate reason to consider broader claims 438, 440, and 536 to be enabled. It follows that this argument reveals no error in the Examiner's rejection of these claims.

Under 35 U.S.C. 112, paragraph 6, a means plus function element is to be construed as limited to the corresponding structure disclosed in the specification and equivalents thereof. Appellants' Brief BV1 first paragraph stating "[t]hus since the Examiner has allowed claims to specific examples described in the specification, the claims in means plus function form can not be rejected as not being enabled and the rejection should be reversed" construed the specific examples of Appellants' specification, i.e., the claims that the Examiner allowed, with the 112 paragraph six "corresponding structure." The Examiner did not dispute this and the Board at the oral hearing. The statute mandates that the claim include equivalents. The Board's Decision does not identify what the equivalents are and also why those equivalents are not enabled.. IN view of the Board's Decision Appellants adopted the following new construction of the 112 paragraph six "corresponding structure" to be what the Board's Decision says is enabled at BD page 7 first paragraph, which is:

The record of this appeal establishes that Appellants' Specification provides enabling support for the rejected claims which define the material exhibiting a superconductive state at a temperature greater than or equal to 26°K as comprising: (1) a transition metal oxide in combination with (2) a rare earth element or a rare earth-like element or a group III B element, and/or (3) an alkaline earth element or a group IIA element

The statute mandates that Appellants are entitled to this claim. Appellant do not understand how a 112 paragraph 6 equivalent cannot be enabled if the corresponding structure is not enabled and the Board's Decision does not explain this. Appellants request the Board to reverse the rejection of

claims 438, 440 and 536 with this new claim construction. If boarder claims are subsequently found enabled, Appellants' adopted that as a construction of the 12 paragraph six "corresponding structure" and request reversal of the rejection of claims 438, 440 and 536 with that broader construction.

Appellants request their Request the Prosecution be Reopened submitted concurrently herewith be granted with a statement of the Board's construction of the means plus function element ("means for conducting a superconductive current") of these claims.

19. Section

The Board's Decision from DB page 24, line11 to the end of the argument before the title "Conclusions of Law" at BD page 41 the Board's Decision only mentions claim 12 in its analysis of claims for which the Board's Decision is not reversing the Examiner rejections. Appellants note that each claim has been appeal individually and argument in BV3 are given for why each claim is enabled. The Board's Decision does not respond to the argument present for why each claim for which the Board has not reversed the Examiner's rejection

At BD page 24 the text of claim 12 is quoted. Appellants note the their claim is directed to a superconductive element that is an "superconductive oxide." Appellants note that specific embodiments reported on as having been fabricated and tested by undisputed known means are "superconductive oxides." Thus those fabricated and tested species of within the scope of claim 12. Appellants note that claim 329 which depends from claim 12 is one of the The Know Principles of Ceramic Science Claims. The text of this claim is

CLAIM 329 A superconductive combination according to anyone of claims 12 to 23, 110, 131, 132 or 367-370,

wherein said superconductive composition can be made according to known principles of ceramic science.

Neither the Board's Decision not the Examiner have found this claim enabled even though it is explicitly limited to methods of fabrication known as of Appellants' earliest filing date.

20. Section

As noted above The Board's Decision at BD page 27, line 3—4 states "[o]n this record, Appellants have not shown the asserted correlation between capability and predictability." And as noted above Appellant's respectfully disagree Judge Newman in the passage quoted above establishes the correlation. In addition the correlation is clearly established by the Poole 1988 Enablement Statement (See BV3 page 6), quoted above which states that little familiarity with the chemistry involved is required in making species that come within the scope of Appellants' claims and are not difficult to synthesize. Immediately following the passage quote above from the Board's Decision at BD page 27, line 3—4 the Board's Decision goes on to state at BD page 27, lines 5-12:

Moreover, this premise is contrary to the Schuller article which states:

Thus far, the existence of a totally new superconductor has proven impossible to predict from first principles. Therefore their discovery has been based largely on empirical approaches, intuition, and even serendipity. This unpredictability is at the root of the excitement that the condensed matter community displays at the discovery of a new material that is superconducting at high temperature.

(Schuller 7)

The News Affidavit (Brief Attachment AP) addresses the statement in Schuller "[t]hus far, the existence of a totally new superconductor has proven

impossible to predict from first principles.." Appellants Brief at BV1 page 202, lines 5-11 relying on the NewsAffidavit states::

Thus the statement in the Schuller article in paragraph 5 of the News Affidavit (Schuller Paragraph 2 above) "Thus far, the existence of, a totally new superconductor has proven impossible to predict from first principles" was shown by the work of Marvin L. Cohen and Steven Louie published shortly after the article of Schuller also to be not totally accurate. Moreover, the highlighted section of the abstract refers to layered as a property of the materials just as Applicants' specification has identified layered as a property of high Tc superconductors. See Applicants' original claim 9.

This is unrebutted in the Board's Decision.

The Board's Decision goes on to stat at BD, line 17 to page 28, line 2:

Specifically, Appellants urge that their predictability position is supported by Schuller's reference to new superconductor discoveries as based largely on empirical approaches, intuition, and serendipity since these bases are typically used by scientists during the discovery process as evidenced by the News affidavit (*id.*). However, Appellants have not established their proposition that predictability is indicated by the use of empirical approaches, intuition, and serendipity in the research and discovery methodology of scientists. Contrary to this proposition, we regard predictability in the context of enablement as involving a reasonable expectation of success. See *Wright*, 999 F.2d at 1564 ("Wright has failed to establish by evidence or arguments that . . . a skilled scientist would have believed reasonably that Wright's success with a particular strain of an avian RNA virus could be extrapolated with a reasonable expectation of success to other avian RNA viruses").

This passage from the Board's Decision states "Appellants have not established their proposition that predictability is indicated by the use of empirical approaches, intuition, and serendipity in the research and

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